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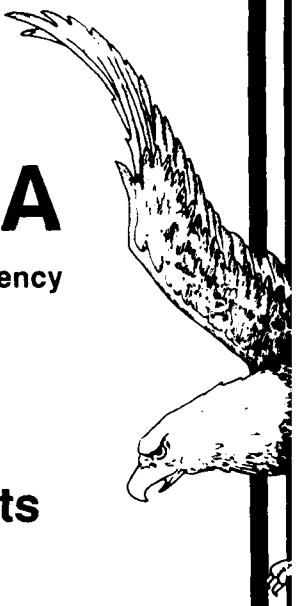

USATHAMA

U.S. Army Toxic and Hazardous Materials Agency

Enhanced Preliminary Assessment Report:

Herminie Army Housing Units Herminie, Pennsylvania

October 1989

prepared for

Commander
U.S. Army Toxic and Hazardous Materials Agency
Aberdeen Proving Ground, Maryland 21010-5401

prepared by

Environmental Research Division
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Argonne National Laboratory has conducted an enhanced preliminary assessment of the Army housing property located in Herminie, PA. The objectives of this assessment include identifying and characterizing all environmentally significant operations, identifying areas of environmental contamination that may require immediate remedial actions, identifying other actions which may be necessary to resolve all identified environmental problems, and identifying other environmental concerns that may present impediments to the expeditious sale of this property.

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FIGURES

SUMMARY

The Herminie housing area located west of the city of Herminie, Pa., does not represent any imminent or substantial threat to human health or the environment. There is no evidence which suggests that hazardous or toxic constituents have ever been released from this property. There are no known adverse environmental impacts from this property.

Although these housing units were originally developed in support of a Nike missile battery, all available documentation and circumstantial evidence suggest that the housing property was wholly independent of the battery's operational activities. No Nike missile-related wastes were delivered to this property for management of disposal. Furthermore, since this property was independent of the Nike missile operations with respect to all necessary utilities, there is no possibility of migration of Nike missile-related wastes along buried utility lines.

The Herminie housing area is an 11.87-acre site that is located 3 miles northeast of Sutersville and 2.5 miles west of Herminie in the far western part of Pennsylvania about 14 miles southeast of Pittsburgh in Westmoreland County.

Asbestos shake siding installed on the housing units is in good condition and does not constitute a hazardous condition at this time. Floor tiles, which may contain asbestos, were also found to be in good condition.

No actions are recommended prior to the release of this property.

1 INTRODUCTION

In October 1988, Congress passed the Defense Authorization Amendments and Base Closure and Realignment Act, Public Law 100-526. This legislation provided the framework for making decisions about military base closures and realignments. The overall objective of the legislation is to close and realign bases so as to maximize savings without impairing the Army's overall military mission. In December 1988, the Defense Secretary's ad hoc Commission on Base Realignment and Closure issued its final report nominating candidate installations. The Commission's recommendations, subsequently approved by Congress, affect 111 Army installations, of which 81 are to be closed. Among the affected installations are 53 military housing areas, including the Herminie housing area addressed in this preliminary assessment.[1]

Legislative directives require that all base closures and realignments be performed in accordance with applicable provisions of the National Environmental Policy Act (NEPA). As a result, NEPA documentation is being prepared for all properties scheduled to be closed or realigned. The newly formed Base Closure Division of the U.S. Army Toxic and Hazardous Materials Agency is responsible for supervising the preliminary assessment effort for all affected properties. These USATHAMA assessments will subsequently be incorporated into the NEPA documentation being prepared for the properties.

This document is a report of the enhanced preliminary assessment (PA) conducted by Argonne National Laboratory (ANL) at the Army stand-alone housing area in Herminie, Pa.

1.1 AUTHORITY FOR THE PA

The USATHAMA has engaged ANL to support the Base Closure Program and assess the environmental quality of the installations proposed for closure or realignment. Preliminary assessments are being conducted under the authority of the Defense Department's Installation Restoration Program (IRP); the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), Public Law 91-510, also known as Superfund; the Superfund Amendments and Reauthorization Act of 1986, Public Law 99-499; and the Defense Authorization Amendments and Base Closure and Realignment Act of 1988, Public Law 100-526.

In conducting preliminary assessments, ANL has followed the methodologies and procedures outlined in Phase I of the IRP. Consequently, this PA addresses all documented or suspected incidents of actual or potential release of hazardous or toxic constituents to the environment.

In addition, this PA is "enhanced" to cover topics not normally addressed in a Phase I preliminary assessment. Specifically, this assessment considers and evaluates the following topical areas and issues:

- Status with respect to regulatory compliance,
- Asbestos,
- Polychlorinated biphenyls (PCBs),
- Radon hazards (to be assessed and reported on independently),
- Underground storage tanks,
- Current or potential restraints on facility utilization,
- Environmental issues requiring resolution,
- Health-risk perspectives associated with continued residential land use, and
- Other environmental concerns that might present impediments to the expeditious "excessing," or transfer and/or release, of federally owned property.

1.2 OBJECTIVES

This enhanced PA is based on existing information from Army housing records of initial property acquisition, initial construction, and major renovations and remodeling performed by local contractors or by the Army Corps of Engineers. The PA effort does not include the generation of new data. The objectives of the PA include:

- Identifying and characterizing all environmentally significant operations (ESOs),
- Identifying property areas or ESOs that may require a site investigation,
- Identifying ESOs or areas of environmental contamination that may require immediate remedial action,
- Identifying other actions that may be necessary to address and resolve all identified environmental problems, and
- Identifying other environmental concerns that may present impediments to the expeditious transfer of this property.

1.3 PROCEDURES

The PA began with a review of Army Housing records located at the Charles E. Kelly Support Facility, DEH Office Building No. S-630052, during the week of July 17, 1989. A site visit at the Herminie housing area was conducted on July 17 to obtain additional information through direct observation and interviews with personnel familiar with the property and its operations and history. Photographs were taken of the housing units and surrounding properties as a means of documenting the condition of the housing units and immediate area land uses. Site photographs are appended.

All available information was evaluated with respect to actual or potential releases to air, soil, and surface and ground waters.

Attempts to gain access to the housing units through involvement of the senior occupant were unsuccessful. Therefore, inspection of the interiors of the units was not possible during the site visit. However, ANL investigators revisited the property on September 12, 1989, at which time the interiors of all the units were inspected.

2 PROPERTY CHARACTERIZATION

2.1 GENERAL PROPERTY INFORMATION

The Herminie housing area is located in Westmoreland County 3 miles west of the city of Herminie, Pa., and approximately 14 miles southeast of Pittsburgh.

The housing units were constructed in 1958. No additional major construction has taken place on the property since that time. The Charles E. Kelly Support Facility, DEH, located in Oakdale, Pa. is responsible for any major renovations or upgrading at the facility.

Figures 1 and 2 show the general location of the facility.

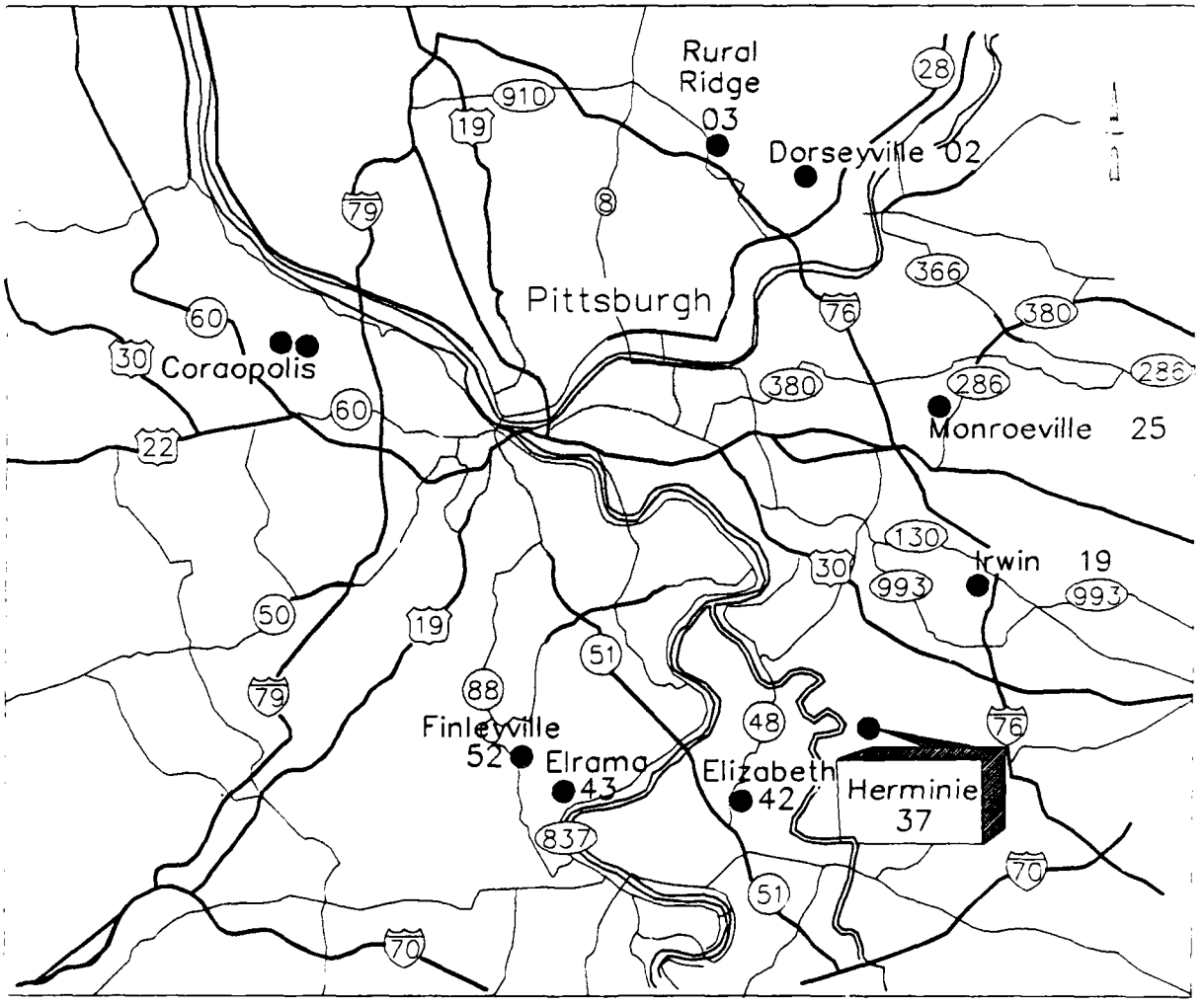

FIGURE 1 Location Map of Pennsylvania Army Housing Facilities

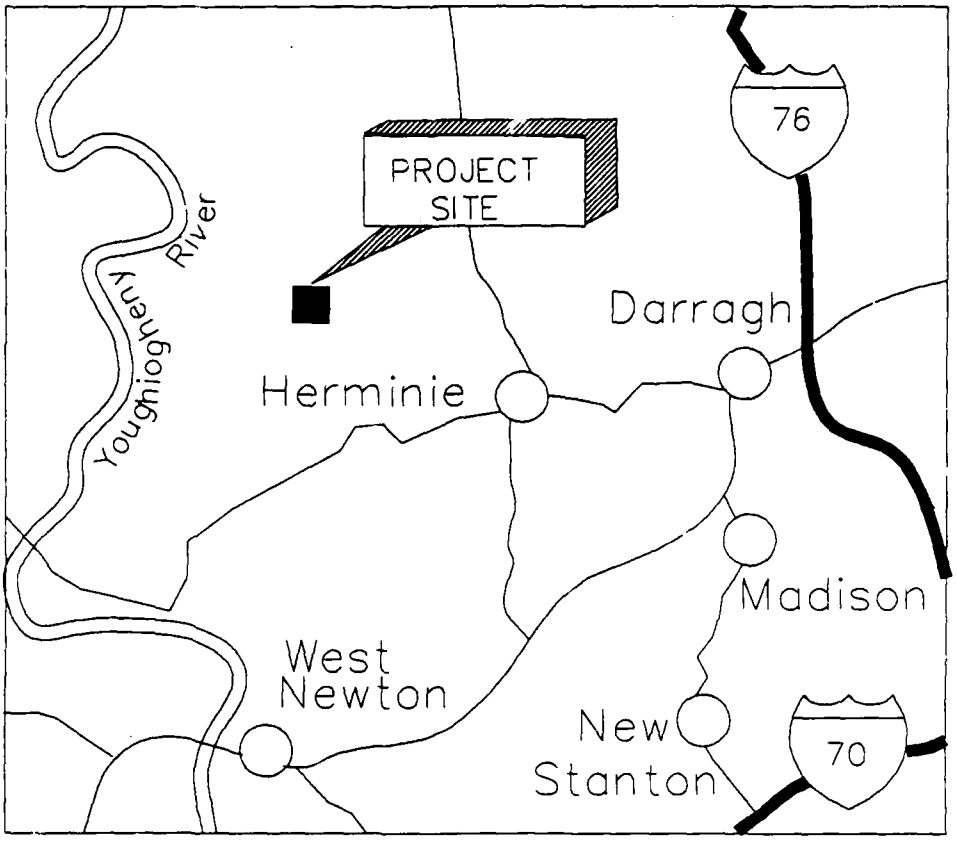

FIGURE 2 Vicinity Map of Herminie Army Housing Units

2.2 DESCRIPTION OF FACILITY

Figure 3 presents the site plan of the housing property.

Housing Units

The housing area occupies 11.87 acres and consists of 16 housing units for military personnel and their dependents.[2]

The units were constructed by the U.S. Army in 1958. All units are built on concrete and masonry block foundations with asphalt floor tile overlaying the foundation. Outside construction is of wood frame covered with asbestos shake shingles over celotex. The roof is constructed of asphalt shingles. Each unit has an exterior storage building, two garbage receptacles (no longer in use), and a paved terrace.

The housing consists of five three-bedroom homes, each with 1,287 square feet, and 11 three-bedroom homes, each with 1,171 square feet.[3]

All units have separate natural gas-fired forced air heating facilities that are adequate for the climatic conditions for the area. A play area is located inside the

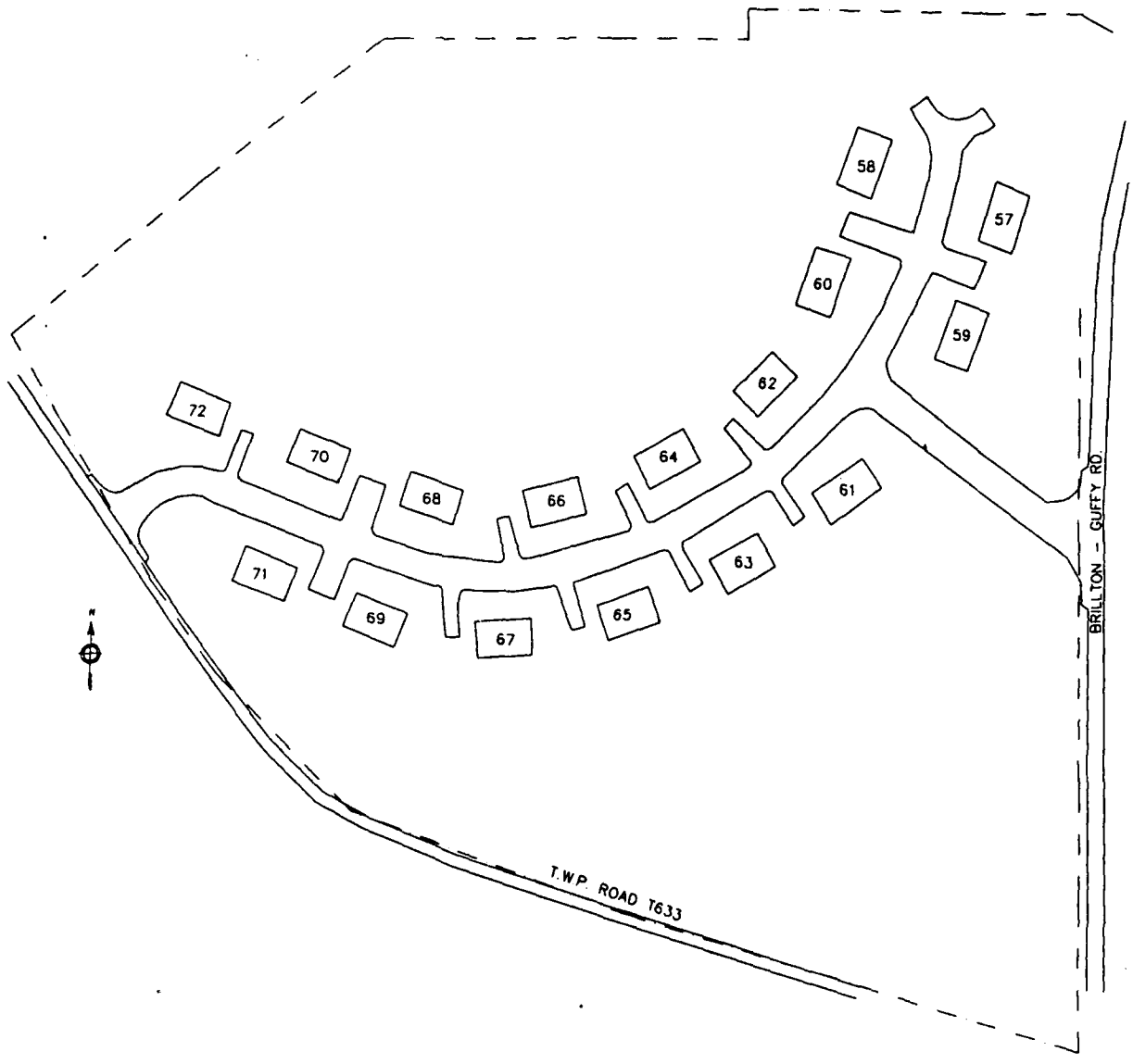

FIGURE 3 Site Plan Map of Herminie Army Housing Units

housing sites' property boundary for use by the children who live in the Herminie housing units. This area is approximately 7,938 square feet and is equipped with playground equipment such as slides, merry-go-rounds, jungle gyms, and swings. A bus passenger waiting enclosure is located on the property. The property also has an on-site sewage treatment facility.

The general public does have access to the property; however, security measures are enforced at the sewage treatment facility by means of a chain link fence and locked entrance gate.

Utilities

Electricity for the Herminie housing area is furnished by the West Pennsylvania Power Company, which owns the four pole-mounted electrical transformers located on the property. Water is furnished by the Municipal Authority of Westmoreland County. Natural gas is furnished by the Columbia Gas Company,[4] and refuse is picked up by Tri-Valley Waste Systems, a private contractor.[5]

Sewage

The Herminie housing area has its own sewage treatment facility, utilizing a trickle rock filter bed system, which is maintained and operated by the U.S. Army.

Storm Drainage System

The storm drainage for the housing units is of the common type of open-ground ditches and surface runoff.

Other Permanent Structures or Property Improvements

There are no other permanent structures or major property improvements on this property.

2.3 PROPERTY HISTORY

2.3.1 Nike Defense Program and Typical Battery-Level Practices

Generic information on the national Nike antiaircraft defense program has been compiled in two studies, one commissioned by the Army Corps of Engineers[6] and the other by the U.S. Army Toxic and Hazardous Materials Agency.[7] In both studies, independent contractors relied on information contained in unclassified documents related to the Nike surface-to-air missile program, including engineering drawings and specifications (for the facilities and the missiles themselves), interviews with Army personnel participating in the Nike program, and operations manuals and directives relating to the operations and maintenance of Nike facilities. Taken together, these two reports represent the most complete assemblage of generic information on the Nike missile program from an environmental perspective. Salient points from both reports are condensed below.

At its zenith in the early 1960s, the Nike program included 291 batteries located throughout the continental United States. The program was completely phased out by 1976, with many of the properties sold to private concerns or excessed to state or local governments for nominal fees.

Nike Ajax missiles were first deployed in 1954 at installations throughout the continental United States, replacing, or in some cases augmenting, conventional artillery batteries and providing protection from aerial attack for strategic resources and population centers. Typically, Nike batteries were located in rural areas encircling the protected area. The Ajax was a two-stage missile using a solid-fuel booster rocket and a liquid-fuel sustainer motor to deliver a warhead to airborne targets.

The Ajax missile was gradually replaced by the Nike Hercules missile, introduced in 1958. Like the Ajax, the Hercules was a two-stage missile, but it differed from the Ajax in that its second stage was a solid-fuel rather than liquid-fuel power source and its payload often was a nuclear rather than conventional warhead. Ajax-to-Hercules conversions occurred between 1958 and 1961 and required little change in existing Nike battery facilities. A third-generation missile, the Zeus, was phased out during development and consequently was never deployed.

A typical Nike missile battery consisted of two distinct and separate operating units, the launch operations and the integrated fire control (IFC) operations. The two operating areas were separated by distances of less than two miles, with lines of sight between them for communications purposes. A third separate area was also sometimes part of the battery. This area was typically equidistant from the two battery operating sites and contained housing for married personnel assigned to the battery. Occasionally, these housing areas also contained battalion headquarters, which were responsible for a number of Nike batteries.

Depending on area characteristics and convenience, the housing areas were often reliant on the launch or IFC sites for utilities such as potable water, electrical power, and sewage treatment. In those instances, buried utility lines connected the housing area to one or both of the other battery properties. It is also possible, however, that housing areas were completely independent of the missile launcher and tracking operations. In those instances, the necessary utilities were either maintained on the housing site or purchased from the local community. In many localities, as the character of the land area around the housing units changed from rural to suburban or urban, communities extended utility services to the housing unit locations, in which case conversions from independent systems to community systems were made.

A large variety of wastes was associated with the operation and maintenance of Nike missile batteries. Normally encountered wastes included benzene, carbon tetrachloride, chromium and lead (contained in paints and protective coatings), petroleum hydrocarbons, perchloroethylene, toluene, 1,1,1-trichloroethane, 1,1,2-trichloroethane, and trichloroethylene. Because of the rural locations of these batteries, and also because very few regulatory controls existed at that time, most of these wastes were managed "on-site." (Unused rocket propellants and explosives, however, would always have been returned to central supply depots and not disposed of on-site.) It is further conceivable that wastes generated at one of the Nike properties may have been transferred to its companion property for management or disposal.

Wastes related to missile operation and maintenance would not have been purposely transferred from a battery operating area to a housing area with no facilities for waste management or disposal. In some instances, however, the sewage treatment

facilities for all Nike battery properties were located at the housing area; that possibility cannot be automatically ignored. Finally, where housing areas received various utilities from either of the operating areas, it is also possible that wastes disposed of on those other properties may have migrated to the housing area via the buried utility lines. And since decommissioning of the Nike batteries did not normally involve removal of buried utility or communication lines, any such contaminant migration is likely to have gone unnoticed.

2.3.2 Herminie Housing Units

The Herminie housing area was developed in 1958 to provide stand-alone housing for military personnel assigned to the Herminie Nike site. Sixteen single-family units were constructed on an 11.87-acre land parcel just outside the town of Herminie. The site has been used as a family housing area for active-duty military families in the greater Pittsburgh area since the missile battery was deactivated in the early 1970s.

All the Herminie housing units are built on foundations made of concrete and masonry block with asphalt flooring overlaying the concrete block. Original outside wall construction consisted of wood frame covered with celotex and asbestos shake siding. Each unit was originally equipped with forced-air natural gas-fired furnaces. Natural gas for indirect heating has been supplied to this property since the time of its initial construction; therefore, no fuel oil underground storage tanks exist on the property. The on-site sewage treatment facility was installed during initial construction of the housing area. Since the initial property development, no other permanent structures besides a bus passenger waiting shelter have been added, and none of the original structures has been razed.

2.4 ENVIRONMENTAL SETTING AND SURROUNDING LAND USE

The population of the city of Herminie is 1,100. The population of the state of Pennsylvania is 11,864,751, and that of Westmoreland County is 392,294 (1980 census).

The family housing units are located on terrain made up of gently rolling to steep slopes along areas of gullies and streams. Surrounding areas are wooded with some agriculture and a scattering of private residential properties.

The Monongahela River Basin occupies 7,384 square miles, lies in the eastern portion of the Ohio River Basin, and includes parts of the states of Maryland, West Virginia, and Pennsylvania. Roughly 36% of the land area of the Monongahela River Basin lies within Pennsylvania. The Monongahela River Basin is located in the Appalachian Plateaus Physiographic Region. The terrain is rugged and valleys are deep and narrow. Flat areas are limited to narrow floodplains and some terraces and flat-topped hills.

The land-use patterns within the basin reflect the major topographic characteristics of the area. In 1974, land use within Westmoreland County was as follows: 12.6% urban, 23.2% agriculture, 47.6% forest, and 16.7% other (including

mining).[8] Most of the agriculture, manufacturing, mining and urban and industrial centers are located in the less rugged western half of the basin. Forrested lands predominate in the eastern half. Hay and livestock are the chief agricultural products. Much coal mining has occurred in the basin, utilizing both surface and underground mining techniques. Most of the coal mining has occurred in the western third, especially along the main stem of the Monongahela River. Industrial activities are concentrated along the Monongahela River, especially within the Pittsburgh metropolitan area.

2.5 GEOLOGIC AND HYDROLOGIC SETTINGS

The Herminie housing area lies within the Appalachian Plateaus Physiographic Province.[9] Rock types are primarily sandstones and shales that contain thin beds of coal. The rocks are divided into 10 stratigraphic units. From youngest to oldest, these units are the Dunkard Group of Permian and Pennsylvanian age; the Monongahela, Conemaugh, and Allegheny groups, and the Kanawha Formation of Pennsylvanian age; the Greenbrier Limestone and Pocono Group of Mississippian age; and the Hampshire, Chemung, and Brallier Formations of Devonian age. Coal beds are numerous in the Pennsylvanian system. The Allegheny and Monongahela groups have 12 feet and 3 feet, respectively, of workable coal. The Conemaugh Group has only thin beds of coal that are generally not workable. The Pennsylvanian system accounts for approximately 75% of the rock units present in the Herminie geographic area.

Soils in the Monongahela River Basin are grouped into 35 associations composed of combinations of 31 major soils. Soils in the Herminie area are composed mainly of the Guernesey-Culleoka association and are formed in unconsolidated water-sorted alluvial materials. Soil pH values range from highly acidic to neutral. Terrain slopes range from 3 to 35%. Soil thickness on the hillsides average 4 to 5 feet.

Quaternary deposits consist of alluvium, which overlies bedrocks in most places along stream valleys. The alluvium is generally permeable and, when saturated, yields moderate to large supplies of water. Groundwater in bedrock occurs largely in secondary openings such as joint planes or solution openings. The Conemaugh Group crops out in the extreme northern part of the county and along some stream valleys and is the source of moderate supplies of groundwater.

The Monongahela River and its tributaries cut valleys below the water table in the interstream areas. Under this condition, the aquifers discharge on the slopes of the valleys in the form of hillside springs and seeps. Conversely, during high stream flow conditions, surface streams will recharge aquifers.

Surface-water flow characteristics within the Monongahela Basin are largely the result of topographic features. Average annual runoff in Subbasin 19 ranges from 14 to 28 inches and is primarily influenced by precipitation distribution; however, land use, land cover, and geologic factors also exert some influence.[9] Flows in most valley streams are seasonably variable. Most streams are found in the valley floors, although, under certain hydrologic conditions, groundwater will discharge to the surface by means of hillside streams and seeps.

3 ENVIRONMENTALLY SIGNIFICANT OPERATIONS

3.1 ASBESTOS CONSTRUCTION MATERIALS

Asbestos shake siding originally installed on the buildings is in good condition and does not constitute a hazardous condition at this time. Asphalt floor tiles, which may contain asbestos, were also found to be in good condition. Inspections conducted on September 12, 1989, revealed that there was no insulation whatsoever on the water pipes. No other insulating materials could be found.

3.2 SEWAGE TREATMENT FACILITY

There have been no documented problems with the on-site sewage treatment facility, and no adverse environmental impacts are believed to have resulted from its operation.

Since its initial construction, this facility has received only domestic wastes from the 16 housing units. No wastes from the Herminie Nike battery operational areas have ever been delivered to this facility for treatment, and no reports of violations of applicable standards have been documented.

4 KNOWN AND SUSPECTED RELEASES

No major releases of contaminants or adverse impacts on the environment have occurred at the Herminie housing area. No hazardous wastes have been delivered to or stored on site. The housing area included in this PA is not believed to have ever been involved in Nike site-related activities. The housing area has been used as housing units for military personnel since its initial construction in 1959. The Herminie housing area is wholly residential in character and no industrial activities have ever occurred on site.

Asbestos shake siding installed on the housing units is in good condition and does not constitute a hazardous condition at this time. Asphalt floor tiles, which also may contain asbestos, are also in good condition.

5 PRELIMINARY ASSESSMENT CONCLUSIONS

Although these housing units were originally developed in support of a Nike missile battery, no wastes associated with the operation or maintenance of the battery were ever delivered to or managed at this housing property. Furthermore, the housing facility was completely independent of the battery's launch and fire control operational areas with respect to water, sewer, and electrical utilities. No releases of hazardous or toxic constituents from this property are known to have occurred.

6 RECOMMENDATIONS

The Herminie housing area represents no imminent or substantial threat to human health or the environment. There is no evidence to suggest that hazardous or toxic constituents have ever been released from this property. No immediate remedial action, therefore, is warranted for the site.

Asbestos shake siding originally installed on the housing units is in good condition and does not constitute a hazardous condition. Asphalt floor tiles, which may contain asbestos, are also in good condition.

No actions are recommended prior to the release of this property.

REFERENCES

1. *Base Realignments and Closures*, Report of the Secretary's Commission (Dec. 1988).

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7. U.S. Army Toxic and Hazardous Materials Agency, *Historical Overview of the Nike Missile System*, prepared by B.N. McMaster, et al., Environmental Science and Engineering, Inc. for USATHAMA Assessments Div., Aberdeen Proving Ground, MD (December 1984).

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9. *State Water Plan, Subbasin 19 Monongahela River*, Office of Resources Management, Bureau of Resources Programming (DCN 42530RM154) (July 1982).

APPENDIX:

PHOTOGRAPHS OF HERMINIE HOUSING FACILITY AND SURROUNDING LAND


1


2


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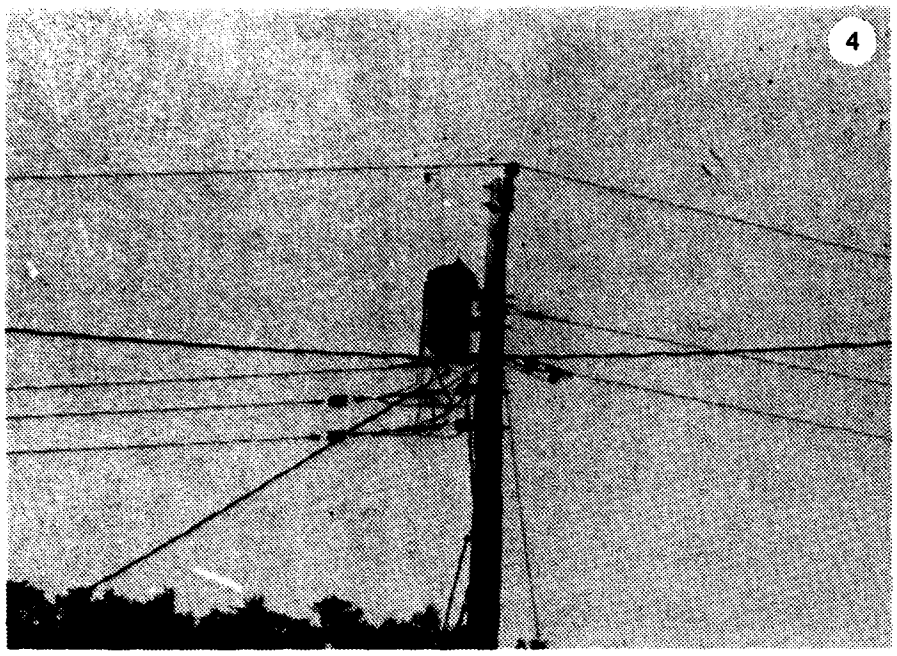
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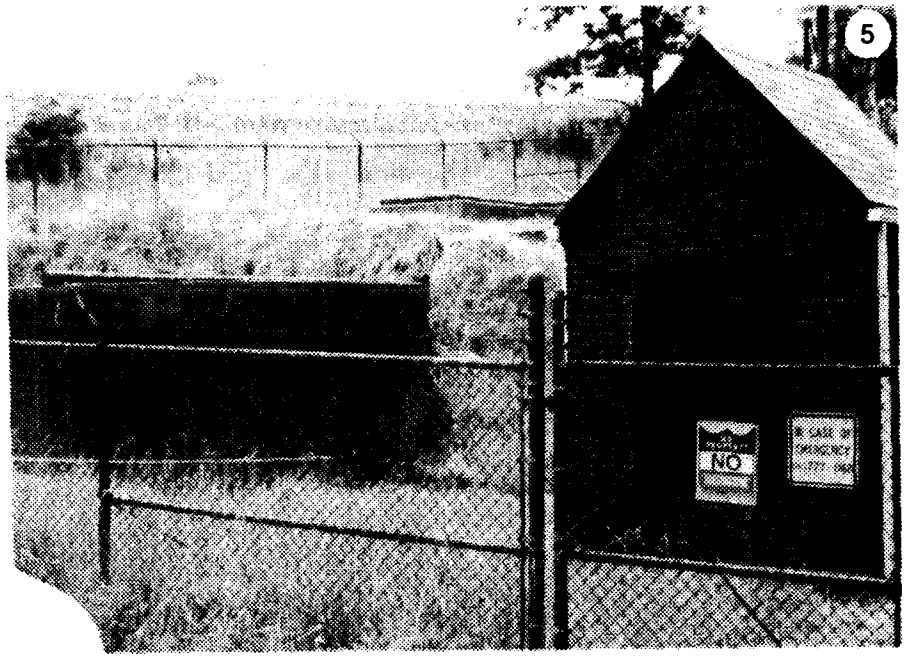
5
NO

IDENTIFICATIONS OF PHOTOGRAPHS

1. The rear of two units at the housing area.

2. An open drain for storm water runoff at the junction of the lawn area and the sloping ground.

3. Playground at the housing area.

4. Electrical transformer at the top of the utility pole; transformers are the property of the U.S. government.

5. The sewage-treatment system, behind the fence, is a trickle rock-bed design that provides for chlorination of the wastewater before it is released.